

Claims

- [c1] An automotive headliner adapted to line the interior of a roof, comprising:
a headliner support having a lower surface adapted to face an automotive interior and an upper surface opposite to said lower surface and adapted to face the roof, said headliner support having a pair of opposite side edges; and
a foam countermeasure integrally molded onto at least a portion of said upper surface of said headliner support and adapted to absorb an impact force from a vehicle occupant, said countermeasure including a pair of rails positioned adjacent said side edges.
- [c2] The automotive headliner of claim 1, wherein said countermeasure further comprises:
a cross member connecting said pair of rails.
- [c3] The automotive headliner of claim 1, wherein said countermeasure includes at least one aperture adapted to receive a headliner component therethrough and attach to the roof.
- [c4] A method of making an automotive headliner having a

plurality of foam countermeasures, the headliner including a headliner support having a lower surface adapted to face an automotive interior and an upper surface adapted to face an interior of a roof, comprising:
inserting the headliner support into a mold having first and second mold plates with corresponding first and second molding surfaces, the lower surface of the headliner support confronting the first molding surface;
inserting a release film into the mold between the upper surface of the headliner support and the second molding surface;
closing the mold;
injecting foam into the mold between the second surface of the headliner support and the release film to form the foam countermeasures directly on the upper surface of the headliner support;
opening the mold; and
removing the headliner from the mold.

[c5] The method of claim 4 further comprising:
securing the headliner support to the first molding surface using vacuum pressure.

[c6] The method of claim 4 further comprising:
securing the release film to the second molding surface using vacuum pressure.

- [c7] The method of claim 4, wherein injecting foam into the mold comprises:
injecting foam through a channel formed in the second mold plate and open to the second molding surface, the channel accessible along a first side edge of the second mold plate.
- [c8] The method of claim 4, wherein injecting foam through a channel formed in the second mold plate comprises:
injecting foam through a pair of channels formed in the second mold plate and open to the second molding surface, one channel accessible along a first side edge of the second mold plate, the other channel accessible along a second side edge opposite to said first side edge.
- [c9] The method of claim 4 further comprising:
removing the release film from the headliner after removing the headliner from the mold.
- [c10] A method of making an automotive headliner having a plurality of foam countermeasures, the headliner including a headliner support having a lower surface adapted to face an automotive interior and an upper surface adapted to face an interior of a roof, comprising:
inserting the headliner support into a mold having first and second mold plates with corresponding first and

second molding surfaces, the lower surface of the headliner support confronting the first mold surface;
closing the mold;
injecting foam into the mold between the upper surface of the headliner support and the second molding surface to form the foam countermeasure directly on the upper surface of the headliner support;
opening the mold; and
removing the headliner from the mold prior to the foam countermeasures being substantially completely cured.

- [c11] The method of claim 10 further comprising:
lining the second molding surface with a release film prior to injecting the foam into the mold.
- [c12] The method of claim 11 further comprising:
removing the release film from the headliner after the foam has substantially completely cured.